



THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

ABRAMS

Serial No.: 09/735,721

Filed: December 13, 2000

Atty. File No.: 4811-9-CIP

For: "FLOCKED TRANSFER AND
ARTICLE OF MANUFACTURE
INCLUDING THE APPLICATION OF)
THE TRANSFER BY
THERMOPLASTIC POLYMER FILM")

) Group Art Unit: 1771

) Examiner: Singh, Arti R.

) DECLARATION OF L. BROWN ABRAMS
) UNDER 37 CFR § 1.132

"EXPRESS MAIL" MAILING LABEL NUMBER: EV1901017360US
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I HEREBY CERTIFY THAT THIS WITH THE UNITED STATES
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TYPED OR PRINTED NAME: Amy Duarte

SIGNATURE: Amy Duarte

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

I, Louis Brown Abrams, being over the age of eighteen, declare as follows:

1. I am the President and founder of High Voltage Graphics, Inc. ("High Voltage"). I founded High Voltage in 1985. I founded High Voltage's sister company, Fiberlok, in 1979. Fiberlok is a licensee of the above application and is the manufacturer of a MOUSE RUG™ (or flocked mouse pad). I receive compensation from and am an equity owner and officer of both High Voltage and Fiberlok. I am also an inventor of the above-referenced invention.

2. This Declaration is being submitted in connection with patent prosecution activities for the above-referenced patent application.

3. In 1998, Fiberlok sold approximately 25,000 MOUSE RUGS™ and in 1999 approximately 82,000 MOUSE RUGS™. As discussed in detail below, the MOUSE RUGS™ included a flocked upper surface, a textile-coated rubber base, and a fringe material extending outwardly from opposing peripheral edges of the base.

4. The manufacturing process used to produce the MOUSE RUGS™ is discussed below.

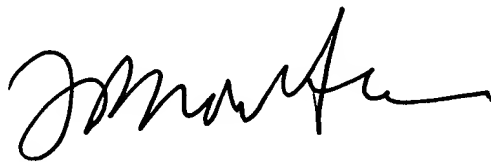
5. To manufacture MOUSE RUGS™, a flock transfer was formed by electrostatically applying flock to a discontinuous carrier sheet coated with a temporary adhesive. A permanent flock adhesive, which was an acrylic adhesive, was applied by screen printing techniques on the free ends of the flock. The flock adhesive holds the flock fibers in place. A permanent textile adhesive or powdered hot-melt adhesive (which is a thermoplastic hot melt adhesive) was applied to the acrylic adhesive. The textile adhesive was used to secure the flock transfer to the textile surface of the textile-coated rubber base material. A continuous roll of each of fringe material, the textile-coated rubber base material, and a pre-formed film of a permanent fringe adhesive (which was a polyester hot melt adhesive) were provided. The textile adhesive on the transfer was contacted with the upper side of the fringe material and the textile-coated surface of the rubber base material. The film of the fringe adhesive was contacted with the lower surface of the fringe material and the textile-coated surface of the rubber base material. The assembly was heated to heat seal the various adhesives and form a laminate. The continuous base material, fringe, and fringe adhesive were then cut to a desired size to form the MOUSE RUG™.

6. I hereby declare that all statements made herein of my own are true and all statements made on information and belief are believed to be true; and further, that the statements were made with the knowledge that willful false statements and the like, if so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the subject application or any patent issuing thereon.

Date:

7 Jan 03

By:



L. Brown Abrams



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Time Magazine

September 28, 1998

SECTION: PERSONAL TIME/YOUR TECHNOLOGY; Pg. 96

LENGTH: 249 words

HEADLINE: Your Technology

BYLINE: Anita Hamilton

BODY:

E-MAIL FROM A PAY PHONE

Technology was supposed to make our lives simpler. Instead we're stuck with 40-lb. monitors, beeping cell phones and a rat's nest of cables. Now JVC and Sharp are making truly simple handheld devices for sending and receiving e-mail. Users just type a note, dial a toll-free number on any phone, then hold the device up to the mouthpiece while short, modemlike screeches indicate that messages are being transmitted. Available this fall, JVC's \$ 100 HC-E100 and Sharp's \$ 150 TelMail require a \$ 10 monthly fee.

A RUG FIT FOR A MOUSE

Longing for a touch of elegance in your office? Had your fill of plastic mouse pads? Then you might want to step up to Lextra's MouseRugs (\$ 20 at www.mouserug.com and museum stores). Patterned after Bokhara, Indian and Persian rugs--and decorated with fringe--MouseRugs are made of nylon fibers that feel cozy and help keep dirt from gunking up the mouse ball. Matching floor rugs not included.

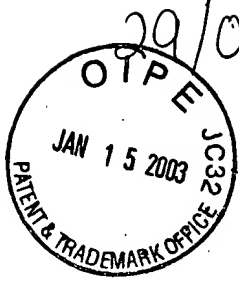
HERE COME THE POKEMON

Beanie Babies? Ho-hum. Tamagotchis? No way. This year's toy craze could well be the Game Boy game Pokemon (\$ 30), which challenges kids to collect up to 150 funny-looking creatures with names like Charmeleon and Squirtle while traveling through a mazelike virtual landscape. Each Pokemon has different strengths and can help players capture more creatures in battle. With more than 9 million Pokemon games sold in Japan, Nintendo is betting that U.S. kids will be equally impressed.

--By Anita Hamilton

GRAPHIC: TWO COLOR PHOTOS, [Handheld computer; three MouseRugs]; COLOR ILLUSTRATION, [Drawing of character from computer game Pokemon]

LOAD-DATE: September 21, 1998



SPECIFICATION

Be It Known That I, LOUIS B. ABRAMS, being a citizen of the United States and residing in the County of Larimer, State of Colorado, whose full post office address is 2942 Silverwood Drive, Fort Collins, Colorado 80525, have invented new, original and ornamental design for

COMPUTER MOUSE PAD FABRICATED FROM PATTERNED FLOCK OR PILE FIBERS

of which the following is a specification, reference being made to the accompanying drawing for forming a part thereof of which:

FIG. 1 is an isometric view of the mouse pad of this invention, shown in its association with the computer, and its mouse, the latter computers being shown in phantom line;

FIG. 2 is a plan view of the mouse pad;

FIG. 3 is a bottom plan view of the mouse pad;

FIG. 4 is an enlarged top plan view of a modified design for the mouse pad;

FIG. 5 is a side view of the mouse pad, the opposite side view being a mirror image thereof; and

FIG. 6 is an end view of the mouse pad, the opposite end view being a mirror image thereof.

I Claim:

The ornamental design for the Computer Mouse Pad Fabricated from Patterned Flock or Pile Fibers. as shown and described.

DECLARATION

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe that I am the original, first, and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **Computer Mouse Pad Fabricated from Patterned Flock or Pile Fibers**. the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Sec. 1.56(a).

I hereby appoint the following attorney to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Paul M. Denk, Reg. No. 22,598.

Direct all telephone calls to: Paul M. Denk, at telephone No. (314) 872-8136.
Address all correspondence to: Paul M. Denk, 763 South New Ballas Rd., St. Louis, Missouri 63141

I hereby declare that all statements made herein of my own knowledge are true and that these statements made on information and belief were believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole inventor: Louis B. Abrams

Inventor's signature: _____

Date: _____

Residence: State of Colorado

County of Larimer

Citizenship: United States of America

Post Office Address: 2942 Silverwood Drive

Fort Collins, Colorado 80525

D.N. 6825

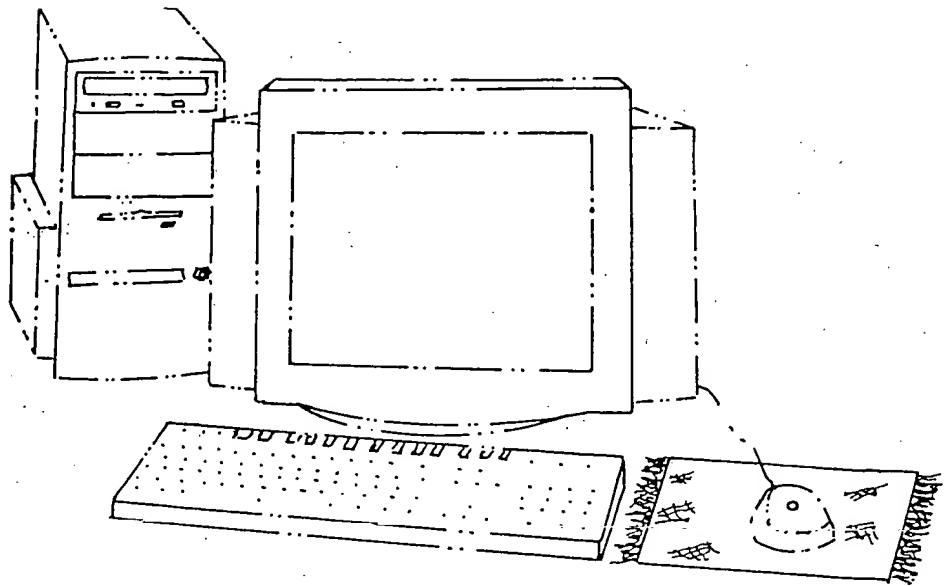


FIG. 1

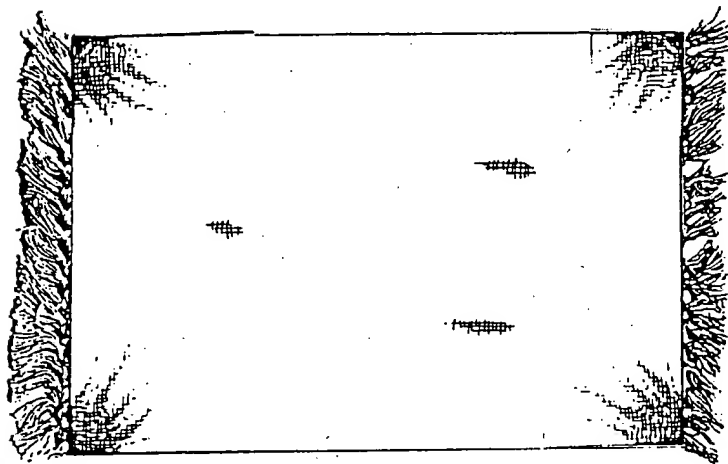


FIG. 2

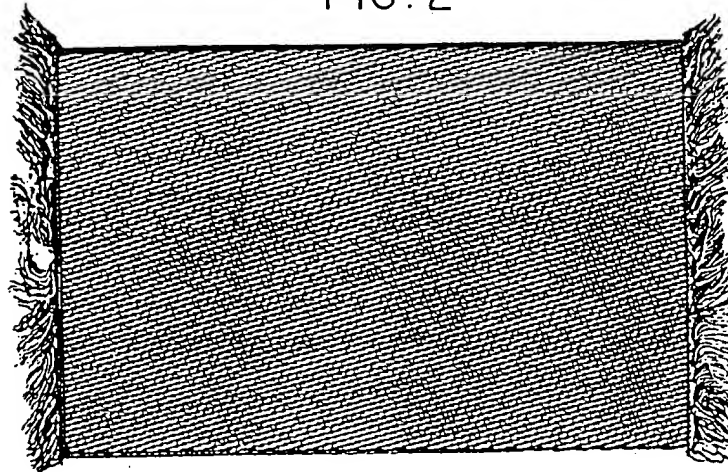


FIG. 3



FIG. 4

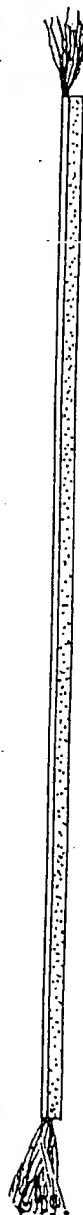
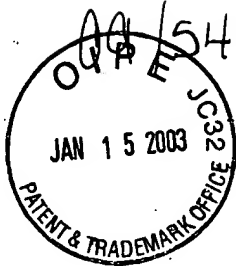


FIG. 5



FIG. 6



4811-8-CIP

SPECIFICATION

To All Whom It May Concern:

Be It Known That I, L. Brown Abrams, a citizen of the United States, resident of the City of Fort Collins, State of Colorado, whose post office address is 2942 Silverwood Drive, Fort Collins, Colorado 80522, has invented new and useful improvements in

COMPUTER MOUSE PAD FABRICATED FROM PATTERNED FLOCK OR PILE FIBERS AND METHOD OF FABRICATION

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation-in-part application based upon a design patent application having Serial No. 29/058,551, filed on August 19, 1996.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable.

BACKGROUND OF THE INVENTION

1. Field of the Invention

Mousepads have been fabricated using a variety of methods. In the most common method, a high density plastic or fabric "mousing surface" is adhered with glue to a foam substrate. Those mousepads which have the plastic or fabric sheet on top eventually come apart from the base, usually looking ragged at the corners first, and eventually no longer function. Other methods employ natural materials, such as leather, as both the "mousing surface" and underside of the mousepad. These materials are expensive to obtain, and do not function optimally for use as mousepads.

BRIEF SUMMARY OF THE INVENTION

The present invention generally relates to a method of manufacturing a mousepad with flock appliques. Specifically, the invention is directed to methods of manufacturing flock transfers which exhibit superior mousepad surface performance, particularly flock transfers composed of a plurality of precolored flock. More particularly, the present invention is directed to improved decorative appliques manufactured from a continuous roll of rubber aligned with textile and a hotmelt film, the pattern transferred directly on the aligned rubber and textile, heat fused together and die cut to form a mouse pad.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

In the drawings, Figure 1 is a cross-sectional view of the flock transfer of the invention.

Figure 2 is a cross-sectional view of the flock transfer of the invention being applied to a surface;

Figure 3 is a perspective view of an automated mouse pad manufacturing assembly;

Figure 4 is a top plan view of a mouse pad of the present invention ;

Figure 5 is a view in side elevation of the mouse pad; and

Figure 6 is a front plan view of the mouse pad.

Figure 7 is an exploded view of the components of an alternative embodiment of the method of making a mousepad.

DETAILED DESCRIPTION OF THE INVENTION

As shown in FIG. 1 the transfer 2 of the present invention comprises a dimensionally stable paper sheet 4 to which a conventional flock transfer release adhesive 6, usually silicone wax, is applied in the reverse of a desired pattern, that is a pattern which corresponds to the overall image which is to be flocked. In the preferred embodiment, the pattern is a simple rectangle. The flock 8 which may be rayon or any other type of conductive material such as nylon, polyester or the like is applied to the activated adhesive 6 by conventional electrostatic means or gravity.

In order to achieve a multicolor effect the flock 8 is applied through a gauze-like mesh screen. The different colors are achieved by using different color flock. As each color is applied a different screen is used which only allows penetration of the particular colored flock onto its section of the release adhesive 6. Since the flock is not printed with ink following flocking as in a conventional multicolor transfer, the length of the flock can be substantially increased to 1 mm as opposed to the conventional 0.3 mm. Thus, the transfer is much more plush, vivid and three dimensional.

The lower ends of flock 8 are coated with a binder adhesive 10 such as a water based acrylic 1 which binds the flock into a unit. The binder 10 may contain an additional adhesive, a hot melt, for binding the transfer to a substrate. In the preferred embodiment, natural rubber acts as the substrate. In the alternative the hot melt adhesive 12, usually a

granular polyester or nylon, may form a separate layer. The use of separate hot melt layers is preferable.

FIG. 2 illustrates the application of the transfer to a surface. The hot melt surface 12 is placed against the rubber 14. Heat and pressure is applied to the release sheet 4 in order to bond the transfer to the rubber surface. The release sheet 4 with the adhesive 6 is then pulled away from the flock 8. This leaves a transfer permanently affixed to the rubber surface. The individual mouse pads are die cut from the larger finished flock and rubber bonded combination. Since the fibers are specially treated with a conductive finish, in use they help ground the mouse by drawing static electricity away.

The present invention utilizes the general materials and flocking techniques found in U.S. Pat. Nos. 3,793,050; 4,292,100; and 4,396,662 and UK patent application Nos. 2,065,031 and 2,126,951 all of which are incorporated by reference herein. Although the invention utilizes conventional materials and techniques which can be generally found in various prior art references, the particular combination of elements of the present invention produces a unique and superior flock transfer.

An example of the method of producing the mousepads of the invention comprises:

- (1) a release adhesive such as a silicone wax layer 6 in the reverse of a predetermined pattern is applied to a dimensionally stable base sheet 4, such as, a bond paper.

- (2) A first color of rayon flock 8 is passed through a monofilament polyester screen for ten to fifteen seconds through an electrostatic field. The screen has open sections in those areas which correspond to the first colored section of the reversed design. The upper ends 25 of flock 8 are imbedded in the wax layer 6 since the wax acts as a ground for the charged particles.

- (3) This procedure is then followed for each succeeding color of rayon flock 8 that is to be electrostatically flocked in order to form the desired design. The unit is then dried.

(4) The lower ends 26 of the exposed flock 8 are printed using conventional screen printing equipment with a water based acrylic binder 10 (40%-60% water). The binder 10 binds the flock 8 and further provides opacity and brilliance by reflecting light.

(5) The binder 10 is powdered with a nylon polyester hot melt adhesive 12. The transfer is then dried overnight.

(6) After brushing and vacuuming excess adhesive 12 the transfer is placed in an infrared dryer to cross link the binder 10 and adhesive 12.

(7) To apply the transfer to a rubber base 14, the adhesive surface 12 is positioned on the rubber base 12. Heat and pressure (5-60 seconds at 300-350 degrees F.) is applied to the paper 4. The transfer is allowed to cool and the paper 4 and wax 6 are removed by peeling the paper 4 from the flock 8.

The desired flock design is thus permanently affixed to the rubber base.

In the processing and manufacturing of the sheets of material that ultimately form the mouse pad of this invention, it may be that separate rolls of base rubber, and a textile, may be unwound off of their respective rolls and adhered together by a hot melt adhesive. The hot melt adhesive may likewise be formed as a film, and arranged intermediate the two materials as they are unwound, to provide for their adhesive connection together. Nevertheless, and either before or after this step, the textile may have one of the transfer continuously applied to it, after fabrication of the transfer in the manner as described with respect to the development as shown in Fig. 1, and when subsequently all of these laminates, including the base rubber, the textile, the textile with the flock transfer applied to it, are laminated together, and subject to whatever heat is required to provide for the blending of these components into an adhesively connected state, at this time, the continuous length of consolidated material may be subject to dye cutting, to the dimensions required and desired for forming the mouse pad of this invention. Following this, and at that stage, fringe material may or may not be applied to the edges of the pad, to provide it with the decorative effect sought for the end and finished product.

It is desirable to automate the process for manufacturing mouse pads. Referring now to Fig. 3, a continuous roll of release material 4 with associated transfer release adhesive 6 passes across the flocking assembly 18 where fibers are embedded into the

release material 4 through transfer release adhesive 6. A continuous roll of rubber base material 14 with associated binder 10 is laid over the surface of the release material 4, and heated in drying oven 34 until the fibers are fused onto the surface of rubber base material 14 through the binder 10. Release sheet material 4 is then peeled away. A cutting knife or sectioner 40 cuts the individual mousepads 32.

In the preferred embodiment of the present invention, patterns of oriental rugs are created by scanning images of real hand-woven rugs, digitizing and outputting the art files used in the fiber coating process. In this way all the irregularities and imperfections are reproduced to make the finished product look like a miniature version of a hand made rug. Referring to Fig.'s 4 and 5, the mousepad surface is substantially rectangular, having longer sides 35 and 36, and shorter sides 37 and 38. The mousepad 32 can have fringe 28 added to the shorter sides 37 and 38 for aesthetic reasons. It is preferable to add the fringe 28 at the interface of flock 8 and rubber base 14.

Referring now to Fig. 7, an alternative method of making the mousepad of the present invention is shown by way of illustrating the component parts of the mousepad. Top portion 25 is formed to an appropriate size. It is preferred that the top surface portion 25 is composed of fibers flocked onto material, similar to that as previously described, and cut to the desired size. An appropriately sized intermediate heat seal film such as 40, is then placed at the interface between fibers 25 and rubber base 14. The intermediate heat seal film 40 has approximately the same area as the top surface portion 25. Heat is applied until the heat seal film 40 permanently bonds the fibers 25 to the rubber base 14.

CLAIMS:

1. A method of continuously fabricating computer mouse pads comprising :
forming and aligning a series of layers of sheet material, one of said layers being a base rubber, the second being a textile fabric, and a third layer being a hot melt film, and consolidating said layers together into an integral unit; forming a layer of release material from a release sheet and a release binder;

applying flock to the release sheet in a predetermined pattern to form a flock surface;

applying a binder to the exposed flock surface;

applying a layer of base material to the binder;

fusing the base material to the binder; and

removing the release material to leave an exposed surface of flock bound to the base material,

applying the flock to the textile material surface; and

cutting the composite material as formed into dimensional sheets to form the dimensioned mouse pad.

2. The method of claim 1 wherein the flock is applied to the release material electrostatically.

3. The method of claim 1 wherein the adhesive binder is fused to the base material with an adhesive.

4. The method of claim 3 wherein the adhesive is a hot melt adhesive.

5. The method of claim 1 wherein the hot melt film comprises one of polyurethane, polyester, and nylon.

6. A method of continuously fabricating computer mouse pads comprising:
continuously delivering a sheet material of textile fabric; forming a layer of release material from a release sheet and a release binder;

applying flock to the release sheet in a predetermined pattern to form a flock surface;

applying a binder to the exposed flock surface;

applying a layer of base material to the binder;

fusing the base material to the binder;
removing the release material to leave an exposed surface of flock bound to the base material, applying the flock to the textile material surface;
aligning said flock applied textile material with a continuously delivered layer of rubber base material, and a third layer of a hot melt film, and consolidating said layers and flock applied textile fabric together into an integral unit; and
cutting the composite material as formed into dimensional sheets to form the dimensioned mouse pad.

7. The method of claim 6 and including applying fringe material to at least two sides of the cut dimensional sheets.

8. A method of making a computer mouse pad comprising:
fabricating a top surface portion in a pattern;

adding a base of about the same size as the top surface portion under the top surface portion;

adding an appropriately sized heat seal film between the top surface portion and the base; and

applying an effective amount of heat to bond the top surface portion to the base.

9. The method of claim 8 wherein the top surface portion comprises fibers oriented substantially perpendicular to the base portion.

ABSTRACT OF THE DISCLOSURE

A plush fiber mousepad is disclosed, and its method of manufacture is defined. The plush fiber mousepad is continuously made from a process of electrostatically flocking a release material, and adding a binder to the release material, fusing the binder to a base material such as a textile fabric, and removing the release material to expose the plush surface, and then laminating the textile material to a rubber base sheet, through the application of a hot melt film, with the lamination step taking place either before or after the electrostatic application of the plush fiber to the textile base material.

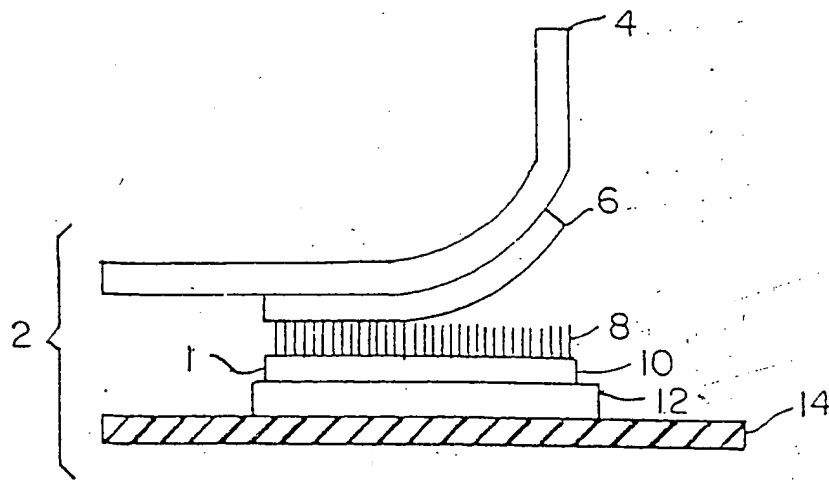


FIG. 1

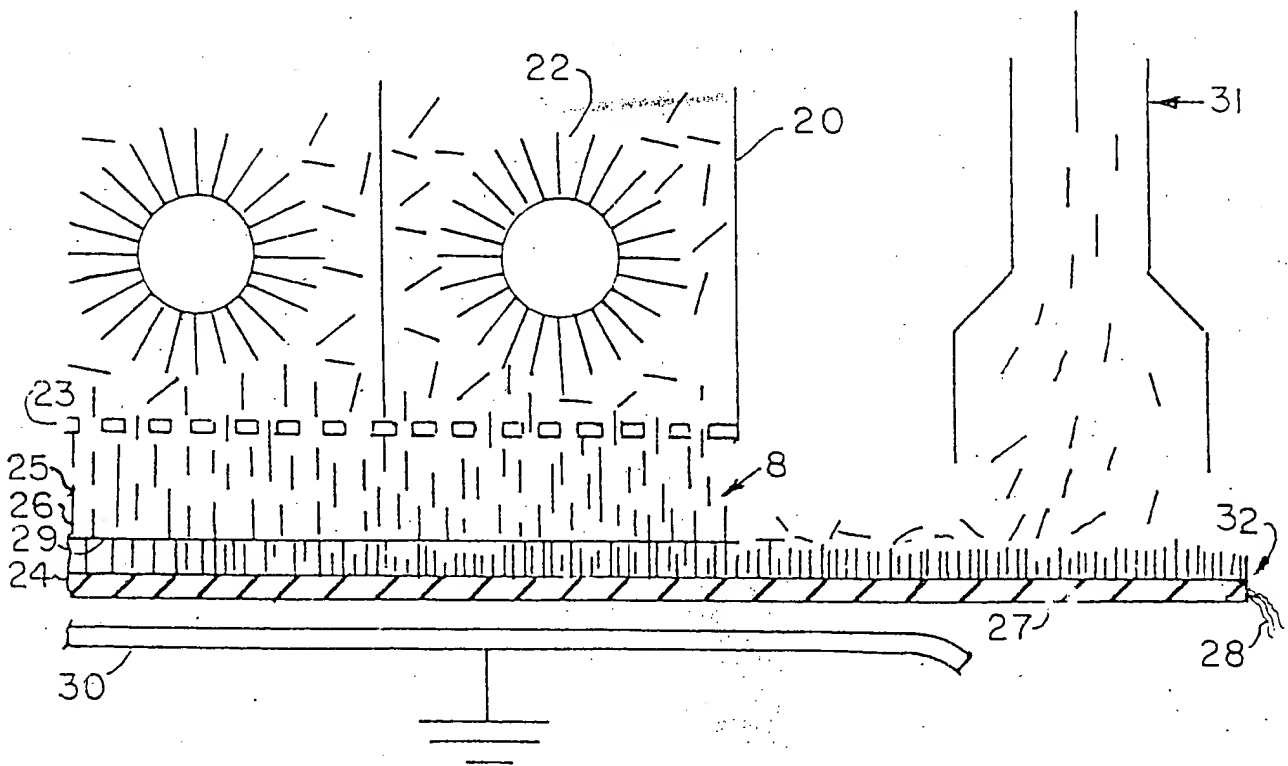
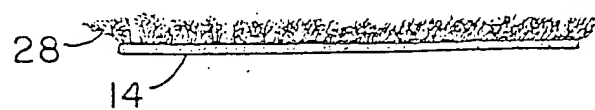
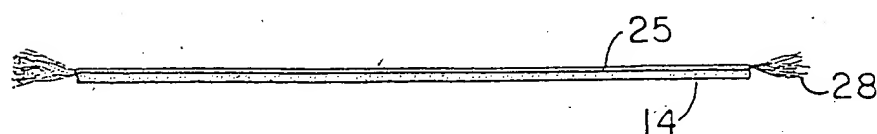
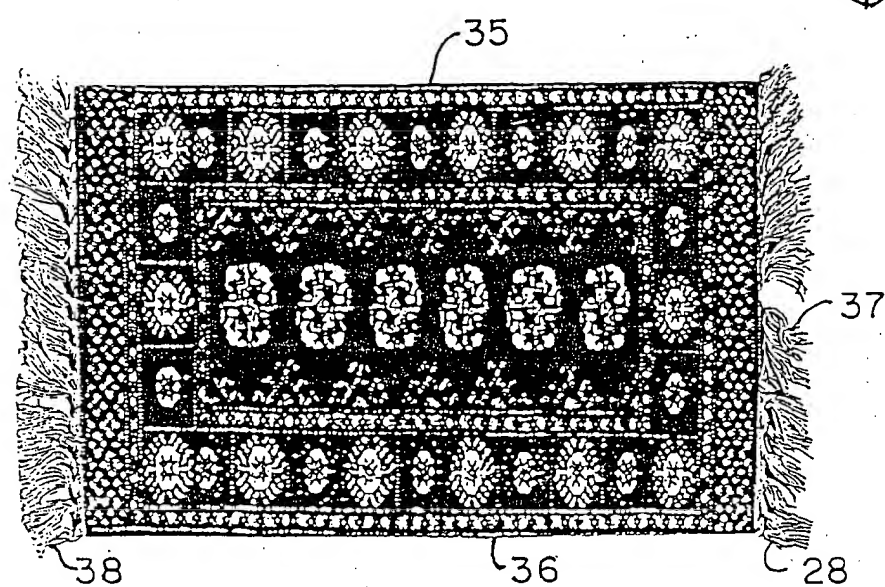
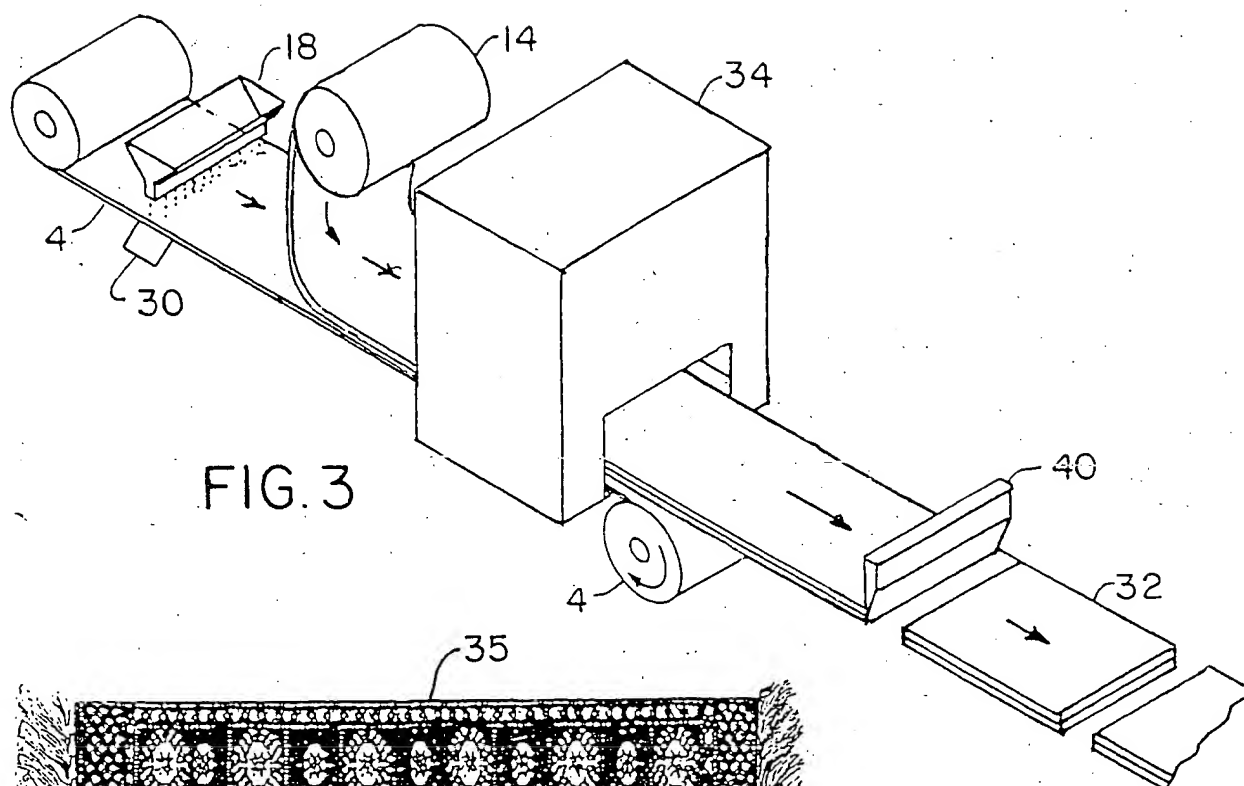


FIG. 2



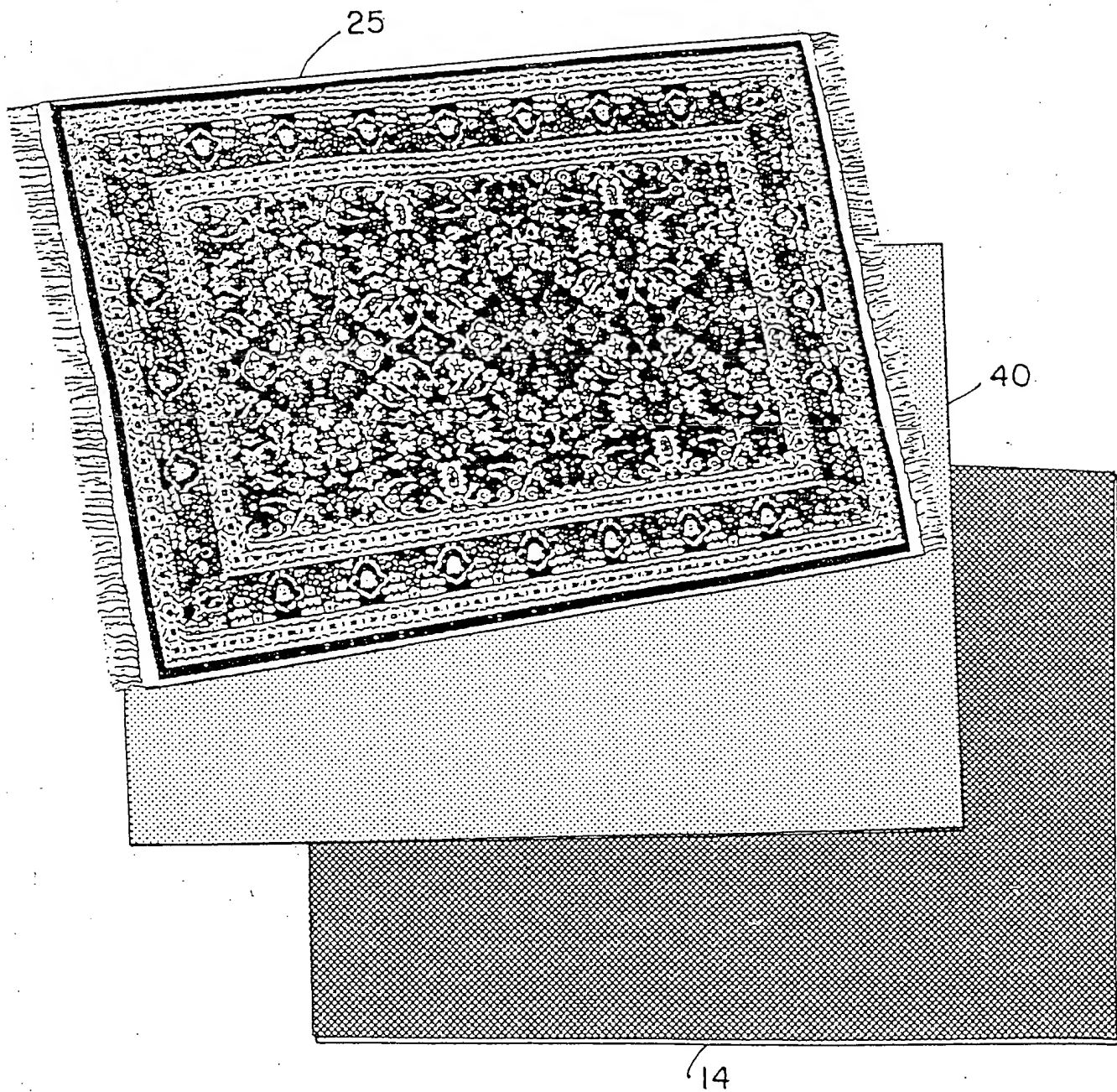


FIG. 7